

Independent Claim 1 relates to a vibration wave driving apparatus, and recites, *inter alia*, the features of an output shaft (2) extending through the through-hole of a vibration member (5,6) and the through hole of a rotary member (8), and rotatable with the rotary member, where *the output shaft provides a bearing surface (e.g., at bearing(s) 18) that locates a radial position of the vibration member (5,6) at an axial position within the through-hole of the vibration member, where the axial position corresponds to a node of a vibration generated in the vibration member.* (See attached copy of Fig. 2, including dashed-lines indicating vibration mode having two nodes respectively located at axial positions within the through hole of vibration members 5,6.)

Independent Claim 18 recites similar features with respect to a vibration wave driving apparatus comprising a vibration member and a plurality of rotary members in press contact with the vibration member. (See, e.g., Figure 3 and the corresponding written description.)

As disclosed in greater detail in the present application, and as will be readily understood by those skilled in the art, in each aspect the claimed structure of the present invention provides a significant improvement over structures of the prior art in that, by locating a radial position of the vibration member at an axial position within the through-hole, the axial position corresponding to a node of a vibration generated in the vibration member, the output shaft thus stabilizes the vibration member and prevents the vibration member from shifting out of radial alignment within the actuator device, thereby significantly reducing friction/drag, wear, noise and/or vibration.

Applicant submits that the prior art fails to anticipate the present invention. Moreover, Applicant submits that there are differences between the subject matter sought

to be patented and the prior art, such that the subject matter taken as a whole would not have been obvious to one of ordinary skill in the art at the time the invention was made.

The Tamai '741 patent relates to a vibration type actuator and discloses an actuator including a vibration member, a movable member (rotor) 8, and an output shaft 2 extending through a through-hole of a shaft-shaped fastening member (hollow bolt) 1 of the vibration member and a through-hole of the moveable member 8, and rotatable by rotation of the movable member 8 (*See, e.g.*, Fig.1 and Claim 1 of the Tamai '741 patent). However, Applicant submits that the Tamai '741 patent fails to disclose or suggest at least the above-discussed features of the present invention. Rather, in the Tamai '741 patent, the vibration member is constructed of a disk-shaped support member 3 and a piezoelectric element 4 sandwiched between two metallic members 5 and 6 and fastened together by fastening member 1, where the vibration member is supported by the support member 3 (*See Fig. 1 and the corresponding text at column 2, lines 10 to 18*). Figs. 4 and 6 illustrate additional embodiments having a similar construction. As clearly illustrated in each of these embodiments, the Tamai '741 patent teaches that the diameter of the hollow portion of fastening member 1 (and thus the vibration member) is substantially larger than that of the output shaft 2. Nowhere does the Tamai '741 patent disclose or suggest that the output shaft 2 provides a bearing surface that locates a radial position of the vibration member at an axial position within the through-hole of the vibration member, where the axial position corresponds to a node of a vibration generated in the vibration member, as disclosed and claimed in the present application.

The Kanazawa '623 patent relates to a vibration wave driven motor, and was cited by the Examiner as teaching the use of a sliding bearing. However, Applicant

submits that the Kanazawa '623 patent fails to disclose or suggest at least the above-discussed features of the present invention, and fails to remedy the deficiencies of the Tamai '741 patent set forth above. Specifically, the Kanazawa '623 patent fails to disclose or suggest at least the feature of a rotatable output shaft. Rather, in the Kanazawa '623 patent the output shaft is fixed. The Kanazawa '623 patent also fails to disclose or suggest the feature of a rotatable output shaft providing a bearing surface that locates a radial position of a vibration member at an axial position within the through-hole of the vibration member that corresponds to a node of a vibration generated in the vibration member, as disclosed and claimed in the present application; nor is the Kanazawa '623 patent believed to add anything to the Tamai '741 patent that would make obvious the claimed invention.

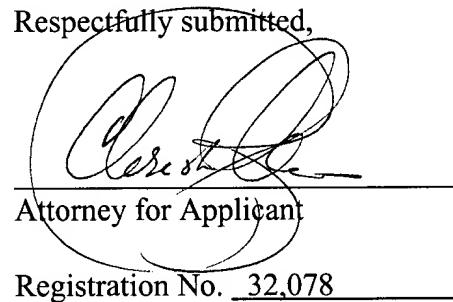
For the above reasons, Applicant submits that independent Claims 1 and 18 are allowable over the cited art.

Claims 3 to 5, 7 to 9 and 19 to 24 depend from Claims 1 and 18, and are believed to be allowable for the same reasons. Moreover, each of these dependent claims recites additional features in combination with the features of its respective base claim, and is believed to be allowable in its own right. Individual consideration of the dependent claims respectfully is requested.

In a formal matter, by separate paper filed concurrently herewith, Applicant has submitted a Request for Approval to Amend the Drawings. In that Request, Applicant has proposed minor formal amendments to the drawings, as requested by the Examiner. In this regard, although the Official Action identifies "Fig. 5", Applicant understands the proper figure is --Fig. 4--. No new matter has been entered.

Applicant believes that the present Amendment is responsive to each of the points raised by the Examiner in the Official Action, and submits that the application is in allowable form. Favorable consideration of the claims and passage to issue of the present application at the Examiner's earliest convenience earnestly are solicited.

Applicant's undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,  
  
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